

[People](#) ⌚ November 11, 2022 at 11:20 pm

Theory and life: academician Yuri Trutnev - about his teachers

✎ [Alexander Yuzhanin](#) 📷 [VNIIEF](#)



Yuri Trutnev, one of the creators of thermonuclear charges, who headed the joint theoretical sector of VNIIEF for 30 years, did not live to see his 95th birthday. He will forever remain a teacher for many specialists of the Sarov nuclear center, and not only him. And we decided to remember who and why he called his teachers.

David Frank-Kamenetsky

“David Albertovich is my first teacher,” wrote Yuri Trutnev. - He gave me a lot, put me on my feet. He treated me with extreme warmth, like a son. I had difficult moments at work. To the point that they almost suggested that I go into mathematics. Then David Albertovich sat me in his room opposite him: “Work calmly.” And he began to teach me quietly. He was a talented, most cultured, most intelligent person. Very well read and widely educated. He always brought new interesting books with him. Even before that I loved and knew poetry. But it was Frank-Kamenetsky who introduced me to the previously unknown poets Gumilyov and Rimbaud. For me, David Albertovich is just a dear person.”

Andrey Sakharov

“I became closely acquainted with Sakharov in 1954,” recalled Yuri Trutnev. — Then various ideas for atomic compression appeared and work began in this direction. The path was difficult; it was necessary to choose physical phenomena that would contribute to the creation of real thermonuclear weapons. Different scientists have approached this in different ways. I came in my own way. When Zeldovich and Sakharov returned from Moscow in May 1954 and Zeldovich told the team of his department what atomic compression was, I realized that my idea would pass. I immediately went to Sakharov and received approval. After that we interacted very closely.



40th anniversary of Andrei Sakharov. Left - Yuri Trutnev, right - Vladimir Zagrafov and Yuri Babaev, 1961

Here the team of theoretical physicists played a big role. Sakharov created such an atmosphere that everyone tried to express their own idea, which, in his opinion, should push things forward. I would like to note that Sakharov paid special attention to young specialists, especially theoretical physicists—caring and cautious. Young specialists gathered in his office in the morning and discussed various physical issues. Sometimes they also touched upon political ones, since everyone lived in the interests of the country. Sakharov always supported ideas and the desire to come up with something new. In this respect, he was an absolutely exceptional person and leader. Moreover, he did not command - he talked and convinced. Yes, there was no need to convince. If Sakharov says so, we had no doubt: this is so, and it was later confirmed that he was right.”

Sakharov turned out to be the only one who appreciated Trutnev’s proposals for further improvement of the thermonuclear charge device. “I had a continuation of the RDS-37 idea, but I decided to wait for tests in November 1955. And when the tests were successful, I called a young specialist, Yuri Babaev, who was working on radiation in the idea of atomic compression, told him about my idea and suggested making such a charge. This is how the idea of the 49th appeared. Babaev and I began to work on the project, but when it was announced at the institute, only Sakharov supported us. We worked under his leadership. In February 1958, everything worked out, and we proposed testing five charges of various calibers in the fall of 1958. Sakharov took our side, and we acted under his leadership,” said Yuri Trutnev.

Yakov Zeldovich

“He is, of course, an exceptional person and physicist. He was able to explain the most complex phenomena simply, clearly, and literally show them on his fingers. “I could evaluate a very complex phenomenon using the simplest model,” said Yuri Trutnev. “We treated him as a major scientist, but there was no wall between us. Everyone is equal at work. And when you feel the benevolence of a leader, when you come to him with an idea or an everyday question and you know that he will definitely help and support, then this creates a special atmosphere... Yakov Borisovich was a very witty person, he loved Saltykov-Shchedrin, and often quoted him. Always to the point and to the point.”



Yuri Trutnev near the thermonuclear warhead for the first intercontinental ballistic missile. Was in service from 1970 to 1979

In 1964, Yuri Trutnev became the successor of Sakharov and Zeldovich, heading the united theoretical sector of VNIIEF, which he led until 1999. His team designed hundreds of nuclear and thermonuclear charges, which became the basis for the nuclear equipment of almost all types of armed forces.

From an interview between Vladimir Gubarev and Yuri Trutnev, Science and Life magazine, No. 8, 2005

About nuclear weapons

Nuclear weapons, from my point of view, are the cheapest way to prevent any threats, any difficulties. Nuclear weapons are also political weapons. It forces a possible aggressor to think seriously before starting a conflict with a country where it exists. For us, nuclear weapons are of particular importance - this is the geopolitical position of the country.

Why was there an arms race, why were so many nuclear weapons accumulated? These questions should not be answered by scientists. Claims must be made to politicians, because in the first place the development of events depended on them.

We did not determine the country's nuclear strategy, but our work influenced the behavior of political leaders. I want to say: I'm not going to make excuses, moreover, I don't regret at all that I came here and took part in the creation of weapons. We worked to strengthen the country's defense capabilities, and without sparing ourselves. Together with the entire country, because nuclear weapons are the work of

many thousands of people. And our conscience is clear, since we did not have Hiroshima and Nagasaki. And there have never been any accidents with weapons.

It seems to me that nuclear weapons will exist for quite a long time. They say: "Weapons of mass destruction." What happened to Dresden? How many residents died there as a result of carpet bombing? About 40 thousand... This is without any atomic bomb. Of course, nuclear weapons have special properties and a multifactorial impact, but modern types of weapons, I would say, are not a gift either. So it is necessary to think much more broadly, not focusing only on nuclear weapons, although they, of course, need to be reduced.

It seems to me that a professional army should deal with nuclear weapons. Our weapons require professionals - responsibility is required when handling them. And a strategy of flexible containment and flexible response must be chosen. Troops equipped with nuclear weapons will meet these goals.

Did nuclear weapons allow a breakthrough into new areas of natural science? Undoubtedly. We have to deal with physical phenomena that cannot be reproduced in laboratory conditions. Tens, hundreds of millions of degrees, pressure - billions of atmospheres, density - hundreds of thousands of grams per cubic centimeter, time - hundred millionths of a second... Completely new areas of physics have appeared here.

About work in Sarov

It was hard for me at the very beginning. At the university they taught it in a scholarly manner, but here the knowledge had to be applied in practice. And even now young people arrive, and it turns out that they need to be retrained right away... At different times it was hard and good, easy and difficult - always in different ways... Life is life, it's difficult to single out anything from it... Now, Of course, there are more difficulties. And sometimes you don't know how to overcome them. We have to search. Sometimes you find it, make a mistake, look again - there are no recipes.



Yura with his parents: Elizaveta and Alexey Trutnev

There were a lot of intelligent people here - world-famous scientists, and therefore the atmosphere was both friendly and creative. She forced us to be proactive and inventive—everyone wanted to come up with a fresh idea. First of all, a person was valued for his ideas, for their development.

I have employees who have done a lot, and they are not even candidates of science, not doctors, but they can be immediately elected as academicians. They just live for work. I believe that our institute is not inferior, for example, to the Siberian Branch of the Academy of Sciences. By the number of qualified personnel, by the variety of topics.

Oh Sun

The sun is a completely unknown object. It is a too complex system... Everything is simple when you understand how it works... You talk to physicists who study elementary particles, vacuum, etc. The abstraction there is so great that it's hard to imagine! Compared to their constructions, our millions of degrees and billions of atmospheres are simple because they are understandable. We are still capable of creating models, but even this is impossible for them - you can't explain anything with your fingers.

About future

500 years ago there was the Renaissance... And now the era of the scientific and technological revolution! People will simply look at our affairs with different eyes, understanding the incompleteness of our knowledge... Different historical conditions, people, tasks, interests... Each time has its own...

MOSCOW — SAROV



Yuri Alekseevich Trutnev was born on November 2, 1927 in Moscow. Then his parents studied at the Timiryazev Agricultural Academy, and after graduating, they moved to Leningrad.

His father Alexey Grigorievich instilled an interest in science in the boy. "I brought test tubes and all sorts of other laboratory supplies from the institute. I started conducting experiments early. In the sixth grade I was simply an experimenter. My father was the first to tell my friend and I about nuclear energy. Of course, he also used popular science books and the magazine "Technology for Youth." I remember articles about the discovery of spontaneous fission of uranium by Flerov and Petrzhak, and about the work of Zeldovich and Khariton regarding the chain reaction. Of course, it never occurred to me that one day I would interact with people like Flerov and Kurchatov," recalled Yuri Trutnev.

At the beginning of the war, he and his mother and sister were evacuated first to the Urals, then to the Gorky region. In 1944, the family returned to Leningrad; in 1945, Yuri graduated from high school and entered the chemistry department of Leningrad University. Zhdanova. From the third year I transferred to physics, to the department of structure of matter, headed by Boris Dzhelepov. This department trained graduates for the nuclear project, and after studying the young specialist ended up in Arzamas-16, the future Sarov.

Share



Have an interesting story?

[WRITE TO US](#)

Read also:

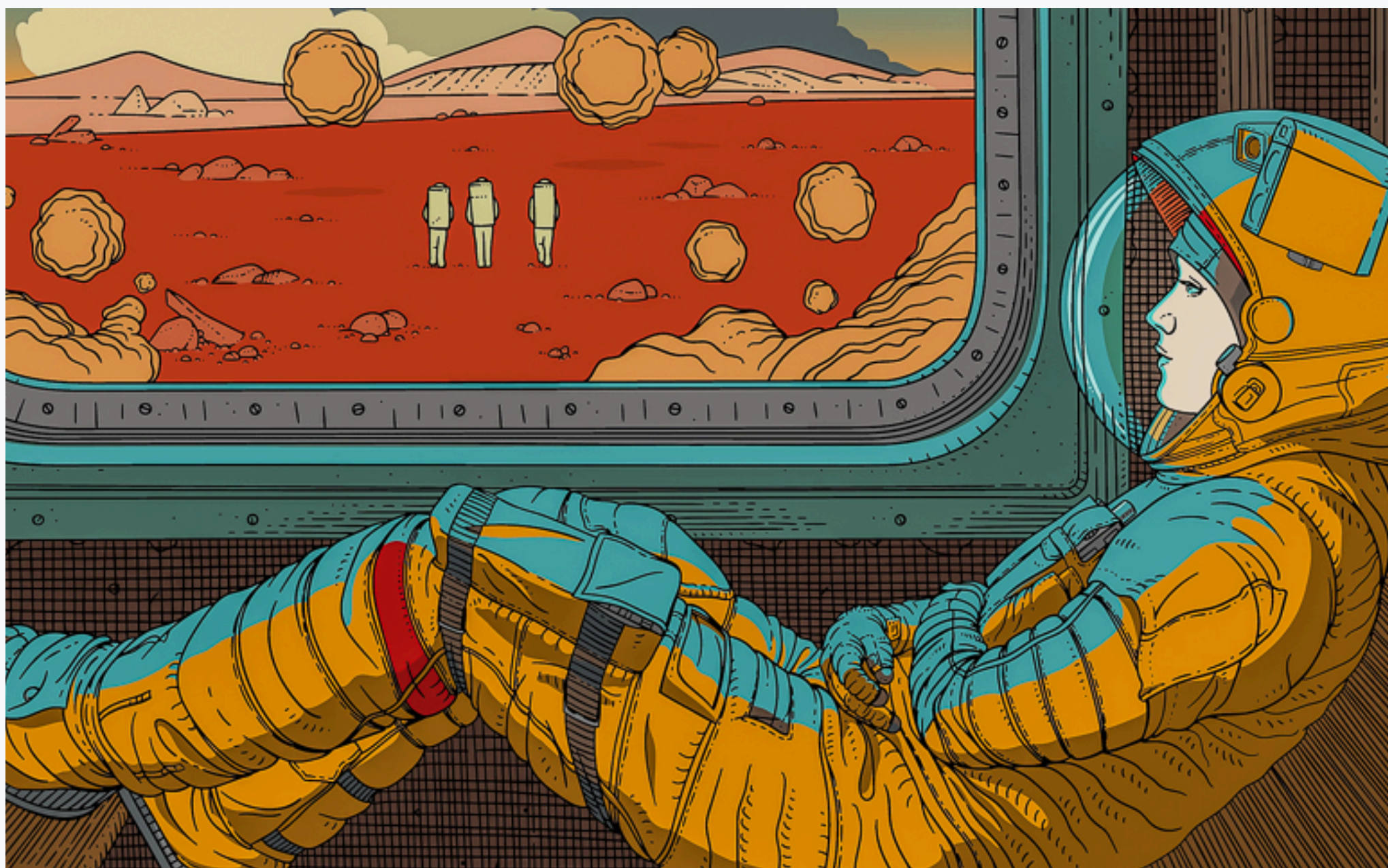
[TECHNOLOGIES](#) ⌚ March 11, 2024

[The magic of ELF: what makes the new Russian laser unique](#)

[STORY. PEOPLE](#) ⌚ March 8, 2024

[Ideas on a universal scale: on the 110th anniversary of Yakov Zeldovich](#)

Lyrics from physicists: quotes from the founding fathers about love



NEWS

Rosatom has created a plasma accelerator for an interplanetary engine

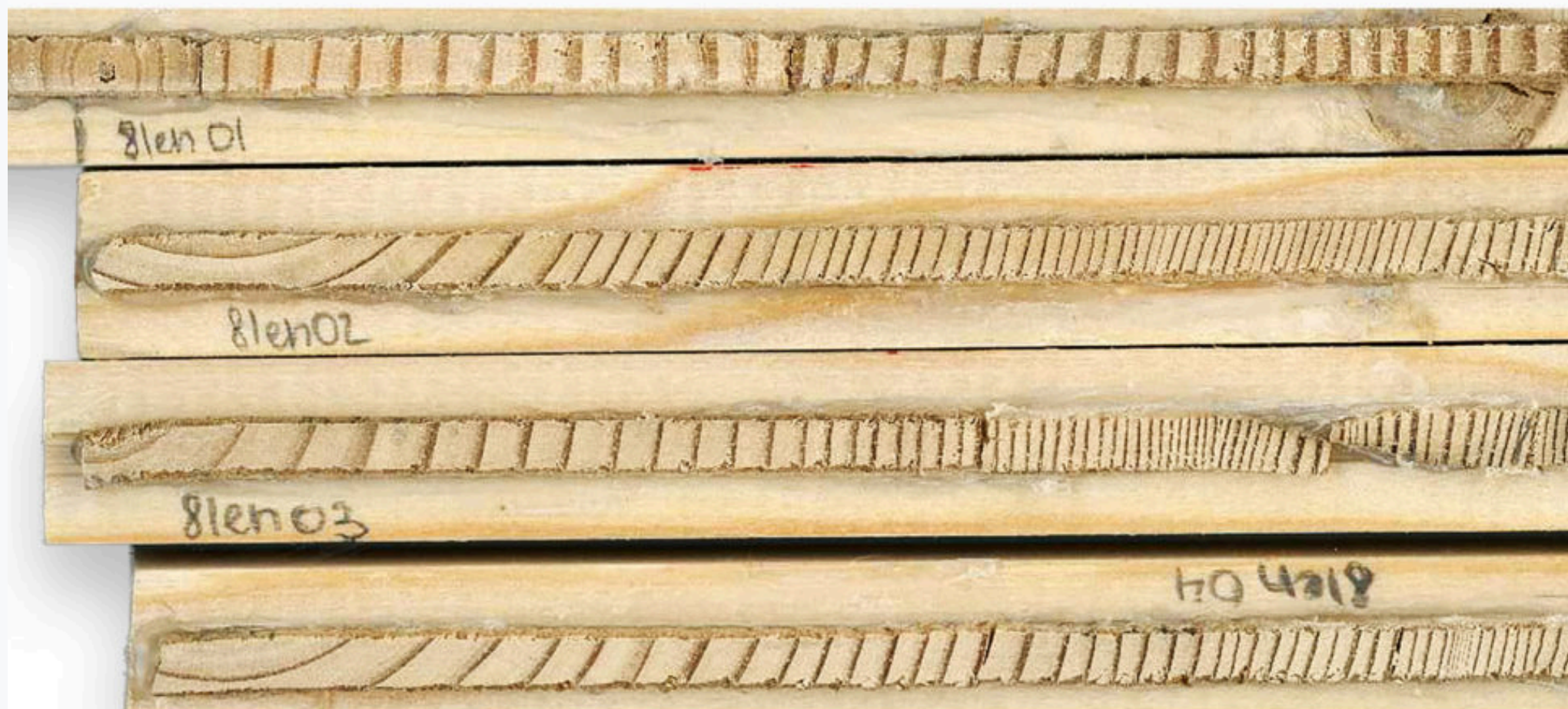
April 19, 2024



NEWS

Rosatom scientists have created a installation for the production of gallium-68

April 19, 2024



SYNCHROINFOTRON

Scientists have assessed the impact of nuclear power plants on the biosphere over the past half century

April 18, 2024

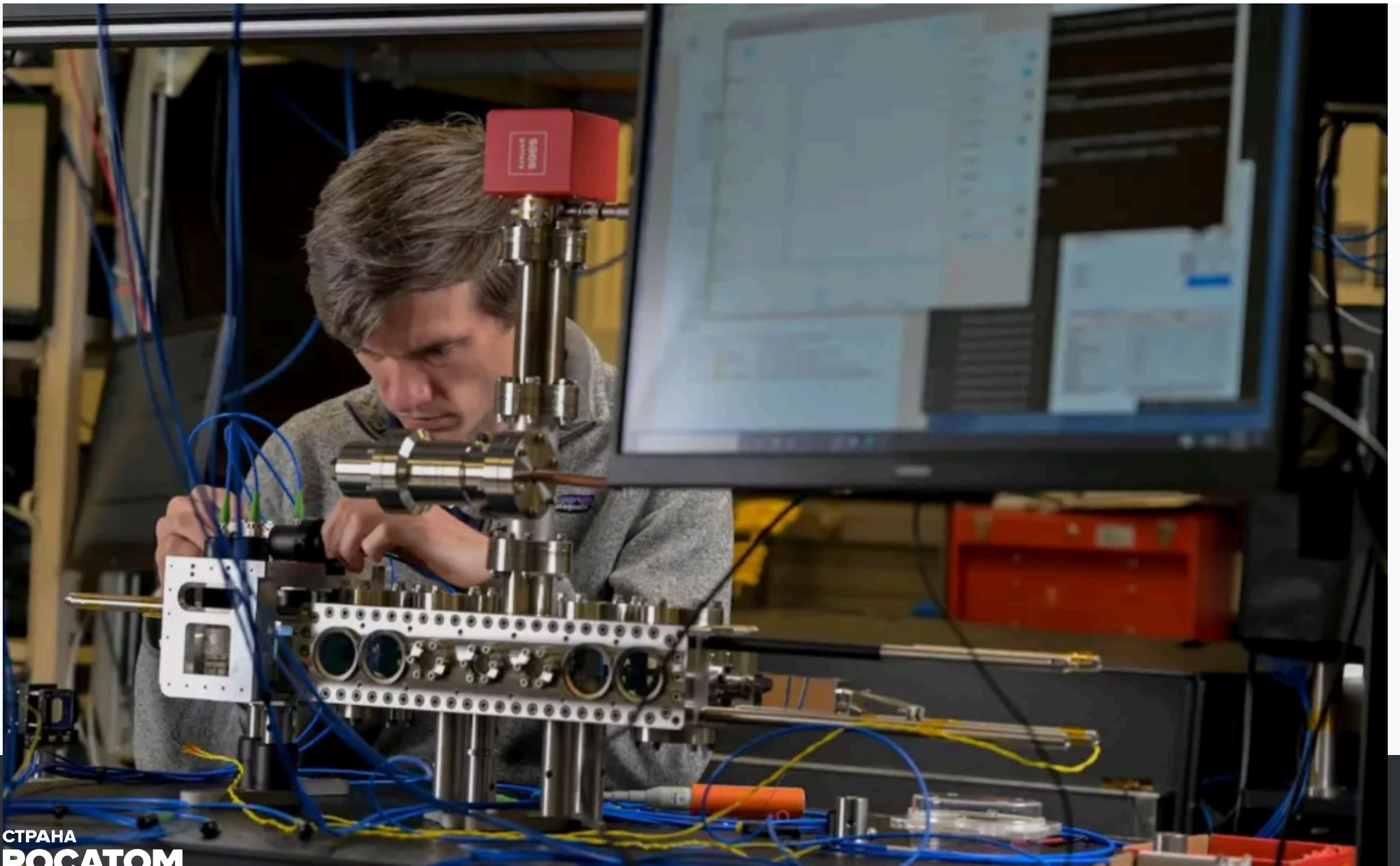


СТРАНА РОСАТОМ

NEWS

“Rosatom Country” received silver in the industry media influence rating

🕒 April 18, 2024



СТРАНА
POCATOM

NEWS

Keep up to date with all important events in the nuclear industry
Graphite levitation and "atomic navigator": discoveries in physics

Enter your email



[Editorial](#)

[Contacts](#)

[Personal data processing policy](#)

Our partners

[Nuclear industry information centers](#)

[Atominfo.ru](#)

[Magazine "Atomic Expert"](#)

[Magazine "Bulletin of Atomprom"](#)

Industry publication of the state corporation Rosatom

© 2010-2024